



Europäisches Patentamt
European Patent Office
Office européen des brevets



1) Publication number:

0 420 212 A3

(12)

EUROPEAN PATENT APPLICATION

21 Application number: 90118505.8

(5) Int. Cl.5: F16J 15/32, B23B 45/00

2 Date of filing: 26.09.90

Priority: 27.09.89 JP 113723/89 U

(43) Date of publication of application: 03.04.91 Bulletin 91/14

Designated Contracting States:
DE FR GB IT

Date of deferred publication of the search report: 02.12.92 Bulletin 92/49

Applicant: MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. 1006, Oaza Kadoma Kadoma-shi, Osaka-fu, 571(JP)

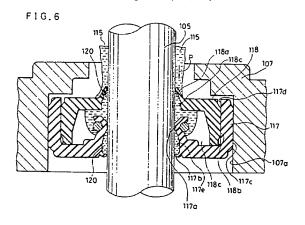
Inventor: Kitamura, Hiroshi Showa-ryo, 16-1, Miyamae-cho Kadoma City, 571(JP) Inventor: Komine, Mizuo 9-32, Mayumi 2-chome Ikoma City, 630-01(JP)

Representative: Dr. Elisabeth Jung Dr. Jürgen Schirdewahn Dipl.-Ing. Claus Gernhardt P.O. Box 40 14 68 Clemensstrasse 30 W-8000 München 40(DE)

Geared motor.

(101) having a pair of helical gears (105a, 101b) as reduction gear-coupling and a viscous grease (115) for lubricating the reduction gears (101) filled in a gear case (102), an integration of main oil seal (117) having a main lip (117a) and a dust lip and a sub oil seal (118) having a sub lip (118a) is used between a rotor shaft (105) and a housing (103, 107), for preventing the leakage of the grease (115) including

metal powder resulted from wear of the gears (101), and a second grease (120) retained in a space formed between the sub lip (118a) and the main lip (117a); and an outer wheel (109a) of a ball bearing (109) for supporting the rotor shaft (105) is fixed on a bottom (103a) of the housing (103) in order not to move the rotor shaft (105) in its axial direction for firmly sealing the rotor shaft (105) by the oil seals (117,118).





EUROPEAN SEARCH REPORT

Application Number

EP 90 11 8505

| Category | | SIDERED TO BE RELEY h indication, where appropriate, | <u> </u> | Relevant | G ACCIPION | TONGS |
|--|---|---|--------------------------------------|---|------------------|------------------------------|
| ategory | of relevant | passages | | to claim | APPLICATIO | TION OF THI N (Int. Cl.5) |
| Y | GB-A- 677 041 (H * Whole document * | HOOVER) |] | 1 | F 16 J B 23 B | 15/32 45/00 |
| Y | US-A-4 550 920 (N * Whole document * | MATSUSHIMA) | 1 | , 3 | | 43/00 |
| A | US-A- 248 572 (K * Whole document * | OYO SEIKO) | 1 | , 3 | | |
| - 1 | 244 (E-430)[2300]. | F JAPAN, vol. 10, no. 22nd August 1986; & TACHI LTD) 15-04-1986 | | ĺ | | |
| | | | | | TECHNICAL | FIFLDS |
| | | | | | SEARCHED (| |
| | | | | | F 16 J B 23 B | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| The present search report has been drawn up for all claims | | | | | | |
| Place of search Date of completion of the search | | | | | Examper | |
| THE | HAGUE | 14-09-1992 | - | LEGE | R M.G.M. | |
| X : partic Y : partic docum | TEGORY OF CITED DOCUME ularly relevant if taken alone ularly relevant if combined with an ent of the same category logical background | E : earlier pater | nt docume ing date ited in the | derlying the i nt, but publis application | pvention | , |

- O: non-written disclosure
 P: intermediate document

EPO FORM 1503 03.82 (P0401)

&: member of the same patent family, corresponding document